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MORRISON, JAY A	
ART UNIT	**PAPER NUMBER**
2168	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	**Application No.** 10/677,472	**Applicant(s)** DETTINGER ET AL.
	Examiner Jay A. Morrison	**Art Unit** 2168

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *23 October 2006*.
2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-45* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *02 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a)☐ All b)☐ Some * c)☐ None of:
1.☐ Certified copies of the priority documents have been received.
2.☐ Certified copies of the priority documents have been received in Application No. _____.
3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Remarks

1. Claims 1-45 are pending.

Claim Objections

2. Claims 34-41 are objected to because of the following informalities:

a. As per claims 34-41: "computer readable medium" should be "computer readable storage medium".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olson et al. ('Olson' hereinafter) (Publication Number 2001/0016843) in view of Chu (Patent Number 5,956,707).

As per claim 1, Olson teaches

A computer-implemented method of using a logical model to query physical fields of physical data entities, comprising: (see abstract and background)

providing a logical model stored in physical storage space and logically describing the physical fields, the logical model comprising logical fields corresponding to respective physical fields (taking a virtual source and physical source and mapping columns, paragraph [0082]), and wherein each logical field is defined by the logical model to include an access method describing a manner of accessing the corresponding respective physical field; (virtual query, paragraph [0083])

wherein the abstract query is defined with respect to at least one logical field of the logical model and wherein at least one value is specified for the at least one logical field; (binding plan maps between virtual and physical, paragraph [0082])

wherein the modified abstract query is defined with respect to the at least one logical field; (binding plan maps between virtual and physical, paragraph [0082]) and wherein the transformed physical query includes a reference to a physical field of at least one of the physical fields, the physical field corresponding to the at least one logical field. (binding plan maps between virtual and physical, paragraph [0082])

Olson does not explicitly indicate "and providing a runtime component stored in physical storage space and configured to change at least one element of an abstract query to produce a modified abstract query which, when executed in the form of a transformed physical query, returns results, the modifying being directed to satisfying a result set criterion with the returned results".

However, Chu discloses "and providing a runtime component stored in physical storage space and configured to change at least one element of an abstract query to produce a modified abstract query which, when executed in the form of a transformed physical query, returns results, the modifying being directed to satisfying a result set criterion with the returned results" (relaxes, column 4, lines 36-43).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "and providing a runtime component stored in physical storage space and configured to change at least one element of an abstract query to produce a modified abstract query which, when executed in the form of a transformed physical query, returns results, the modifying being directed to satisfying a result set criterion with the returned results" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 2,

Olson does not explicitly indicate "the at least element is the value and further comprising changing, by the runtime component, the at least one value by increasing or decreasing the value".

However, Chu discloses "the at least element is the value and further comprising changing, by the runtime component, the at least one value by increasing or decreasing the value" (column 4, lines 44-53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "the at least element is the value and further comprising changing, by the runtime component, the at least one value by increasing or decreasing the value" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 3,

Olson does not explicitly indicate "changing, by the runtime component, the at least one element by removing the at least element from the abstract query."

However, Chu discloses "changing, by the runtime component, the at least one element by removing the at least element from the abstract query" (reject, column 6, lines 11-12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "changing, by the runtime component, the at least one element by removing the at least element from the abstract query" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 4,

Olson does not explicitly indicate "changing, by the runtime component, the at least one element with respect to a weight assigned to the element, the weight indicating a relative priority of changing the at least element relative to other elements in the abstract query."

However, Chu discloses "changing, by the runtime component, the at least one element with respect to a weight assigned to the element, the weight indicating a relative priority of changing the at least element relative to other elements in the abstract query" (relaxation order, column 6, lines 6-8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "changing, by the runtime component, the at least one element with respect to a weight assigned to the element, the weight indicating a relative priority of changing the at least element relative to other elements in the abstract query" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 5, Olson teaches

the at least one logical field of the logical model (paragraph [0084]).

Olson does not explicitly indicate "has an associated element modification parameter defining a parameter for changing, by the runtime component, the at least one element."

However, Chu discloses "has an associated element modification parameter defining a parameter for changing, by the runtime component, the at least one element" (relaxation level, column 6, lines 10-11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "has an associated element modification parameter defining a parameter for changing, by the runtime component, the at least one element" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 6,

the at least one logical field of the logical model (paragraph [0084]).

Olson does not explicitly indicate "has an associated element modification attribute indicating that the at least element specified in the abstract query for the at least one ... field may be modified by the runtime component."

However, Chu discloses "has an associated element modification attribute indicating that the at least element specified in the abstract query for the at least one ... field may be modified by the runtime component" (relaxation level, column 6, lines 10-11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "has an associated element modification attribute indicating that the at least element specified in the abstract query for the at least one ... field may be modified by the runtime component" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 7, Olson teaches

the at least one element is user-defined. (paragraph [0067])

As per claim 8, Olson teaches

the abstract query, including the result set criterion, is user-defined. (paragraph [0078])

As per claim 9, Olson teaches

the physical data entities comprise a plurality of tables in a database. (paragraph [0067])

As per claim 10,

Olson does not explicitly indicate “the result set criterion is part of the abstract query.”

However, Chu discloses “the result set criterion is part of the abstract query” (column 4, lines 19-26).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of “the result set criterion is part of the abstract query” would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 11, Olson teaches

“with reference to the logical model” (paragraph [0081])

Olson does not explicitly indicate “transforming, by the runtime component … the abstract query into the physical query.”

“transforming, by the runtime component … the abstract query into the physical query” (column 4, lines 19-26).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "transforming, by the runtime component ... the abstract query into the physical query" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 12, Olson teaches

A computer-implemented method of returning a desired result set for a query, comprising: (see abstract and background)

providing a logical model stored in physical storage space and to logically describing physical fields of physical data entities, (taking a virtual source and physical source and mapping columns, paragraph [0082]) the logical model comprising logical fields corresponding to respective physical fields and each having an associated modification parameter, (isomorphic query, paragraph [0080]) and wherein each logical field is defined by the logical model to include an access method describing a manner of accessing the corresponding respective physical field; (binding plan maps between virtual and physical, paragraph [0082])

receiving an abstract query comprising a result set criterion and selection criterion comprising at least one of the logical fields of the logical model; (isomorphic query, paragraph [0080]) associated with the at least one of the logical fields of the selection criterion and is directed toward satisfying the result set criterion. (run query, paragraph [0080])

Olson does not explicitly indicate "and manipulating the abstract query to produce a modified abstract query which, when executed, returns results; wherein the manipulating is, at least in part, defined by the modification parameter."

However, Chu discloses "and manipulating the abstract query to produce a modified abstract query which, when executed, returns results; wherein the manipulating is, at least in part, defined by the modification parameter" (relaxes, column 4, lines 36-43).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "and manipulating the abstract query to produce a modified abstract query which, when executed, returns results; wherein the manipulating is, at least in part, defined by the modification parameter" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 13,

Olson does not explicitly indicate "iteratively performing the manipulating until the returned results satisfy the result set criterion."

However, Chu discloses "iteratively performing the manipulating until the returned results satisfy the result set criterion" (repeated, column 4, lines 53-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "iteratively performing the manipulating until the returned results satisfy the result set criterion" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 14,

Olson does not explicitly indicate "the result set criterion comprises a result set size specification."

However, Chu discloses "the result set criterion comprises a result set size specification" (at least, column 6, lines 13-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "the result set criterion comprises a result set size specification" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 15,

Olson does not explicitly indicate "the selection criterion comprises a specified value for the at least one of the logical fields of the selection criterion and wherein manipulating the abstract query comprises manipulating the specified value."

However, Chu discloses "the selection criterion comprises a specified value for the at least one of the logical fields of the selection criterion and wherein manipulating the abstract query comprises manipulating the specified value" (column 4, lines 44-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "the selection criterion comprises a specified value for the at least one of the logical fields of the selection criterion and wherein manipulating the abstract query comprises manipulating the specified value" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 16,

Olson does not explicitly indicate "manipulating the value comprises at least one of: increasing the specified value; decreasing the specified value; and removing the specified value from the abstract query."

However, Chu discloses "manipulating the value comprises at least one of: increasing the specified value; decreasing the specified value; and removing the specified value from the abstract query" (column 4, lines 44-53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "manipulating the value comprises at least one of: increasing the specified value; decreasing the specified value; and removing the specified value from the abstract query" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 17,

Olson does not explicitly indicate "manipulating the specified value comprises at least one of: removing a condition from the abstract query; adding a condition to the abstract query; and changing a condition with the abstract query."

However, Chu discloses "manipulating the specified value comprises at least one of: removing a condition from the abstract query; adding a condition to the abstract query; and changing a condition with the abstract query" (column 4, lines 44-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "manipulating the specified value comprises at least one of: removing a condition from the abstract query; adding a condition to the abstract query; and changing a condition with the abstract query" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 18,

Olson does not explicitly indicate "manipulating the abstract query is done with respect to a weight assigned to an element of the abstract query, the weight indicating a relative priority of changing the element relative to other elements in the abstract query."

However, Chu discloses "manipulating the abstract query is done with respect to a weight assigned to an element of the abstract query, the weight indicating a relative priority of changing the element relative to other elements in the abstract query" (relaxation order, column 6, lines 6-8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "manipulating the abstract query is done with respect to a weight assigned to an element of the abstract query, the weight indicating a relative priority of changing the element relative to other elements in the abstract query" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 19, Olson teaches

A computer-implemented method of building queries, comprising: (see abstract and background)

providing a logical model stored in physical storage space and logically describing physical fields of physical data (taking a virtual source and physical source and mapping columns, paragraph [0082]), the logical model comprising logical fields corresponding to respective physical fields (binding plan, paragraph [0082]), and wherein each logical field is defined by the logical model to include an access method describing a manner of accessing the corresponding respective physical field; (binding plan maps between virtual and physical, paragraph [0082])

receiving an abstract query defined with respect to at least one logical field of the logical model and comprising a user-specified value for the at least one logical field. (isomorphic query, paragraph [0080])

Olson does not explicitly indicate "and programmatically manipulating an element of the abstract query to produce a modified abstract query which, when executed, returns results; the manipulating being directed to satisfying the result set criterion with the returned results", "and a result set criterion specifying at least a size of a desired result set."

However, Chu discloses "and programmatically manipulating an element of the abstract query to produce a modified abstract query which, when executed, returns results; the manipulating being directed to satisfying the result set criterion with the returned results" (relaxes, column 4, lines 36-43), " and a result set criterion specifying at least a size of a desired result set" (user can relax, column 1, lines 25-27; at least (n), column 6, lines 14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "and programmatically manipulating an element of the abstract query to produce a modified abstract query which, when executed, returns results; the manipulating being directed to satisfying the result set criterion with the returned results", "and a result set criterion specifying at least a size of a desired result set" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 20, Olson teaches

with reference to the logical model (paragraph [0082])

Olson does not explicitly indicate "transforming ... the modified abstract query into a form consistent with the physical data."

However, Chu discloses "transforming ... the modified abstract query into a form consistent with the physical data" (column 3, lines 17-31).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "transforming ... the modified abstract query into a form consistent with the physical data" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 21, Olson teaches

the at least one logical field ... in the logical model (paragraph [0082])

Olson does not explicitly indicate "has an associated value modification parameter defined ... and wherein the manipulating comprises manipulating the user-specified value in a manner limited by the associated value modification parameter."

However, Chu discloses "has an associated value modification parameter defined ... and wherein the manipulating comprises manipulating the user-specified value in a manner limited by the associated value modification parameter" (relaxation level, column 6, lines 10-11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "has an associated value modification parameter defined ... and wherein the manipulating comprises manipulating the user-specified value in a manner limited by the associated value modification parameter" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 22,

Olson does not explicitly indicate "the manipulating is performed iteratively until producing the modified abstract query which, when executed, returns results satisfying the result set criterion."

However, Chu discloses "the manipulating is performed iteratively until producing the modified abstract query which, when executed, returns results satisfying the result set criterion" (repeated, column 4, lines 53-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "the manipulating is performed iteratively until producing the modified abstract query which, when executed, returns results satisfying the result set criterion" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 23,

Olson does not explicitly indicate "manipulating the element comprises at least one of: increasing the user-specified value; decreasing the user-specified value; and removing the user-specified value from the abstract query."

However, Chu discloses "manipulating the element comprises at least one of: increasing the user-specified value; decreasing the user-specified value; and removing the user-specified value from the abstract query" (column 4, lines 44-53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "manipulating the element comprises at least one of: increasing the user-specified value; decreasing the user-specified value; and removing the user-specified value from the abstract query" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 24,

Olson does not explicitly indicate "manipulating the element comprises at least one of: removing a condition from the abstract query; adding a condition to the abstract query; and changing a condition with the abstract query."

However, Chu discloses "manipulating the element comprises at least one of: removing a condition from the abstract query; adding a condition to the abstract query; and changing a condition with the abstract query" (column 4, lines 44-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "manipulating the element comprises at least one of: removing a condition from the abstract query; adding a condition to the abstract query; and changing a condition with the abstract query" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 25,

Olson does not explicitly indicate "manipulating the element is done with respect to a weight assigned to the element, the weight indicating a relative priority of changing the element relative to other elements in the abstract query."

However, Chu discloses "manipulating the element is done with respect to a weight assigned to the element, the weight indicating a relative priority of changing the element relative to other elements in the abstract query" (relaxation order, column 6, lines 6-8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "manipulating the element is done with respect to a weight assigned to the element, the weight indicating a relative priority of changing the element relative to other elements in the abstract query" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 26, Olson teaches

A computer-implemented method for returning a specified result size set for a query, comprising: (see abstract and background)

(a) receiving a query comprising at least one condition, an associated value for the condition and a user-specified results criterion; (paragraph [0078])

(b) changing a first element of the query to produce a modified query; (query matched with source and instantiated, paragraph [0080])

(c) running the modified query to produce a result set; (query run, paragraph [0080])

and (e) running the different modified query to produce a different result set for output to a user; (query run, paragraph [0080])

Olson does not explicitly indicate "(d) if the result set does not satisfy the user-specified results criterion, changing one of the first element and a second element of the modified query to produce a different modified query", "wherein the user-specified result criterion specifies a number of modified queries to be generated by changing the first or second element".

However, Chu discloses "(d) if the result set does not satisfy the user-specified results criterion, changing one of the first element and a second element of the modified query to produce a different modified query" (relaxes, column 4, lines 36-43), "wherein the user-specified result criterion specifies a number of modified queries to be generated by changing the first or second element" (user can relax, column 1, lines 25-27; at least (n), column 6, lines 14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "(d) if the result set does not satisfy the user-specified results criterion, changing one of the first element and a second element of the modified query to produce a different modified query", "wherein the user-specified result criterion specifies a number of modified queries to be generated by changing the first or second element" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 27,

Olson does not explicitly indicate "changing either of the first element and the second element comprises at least one of: increasing the associated value; decreasing the associated value; and removing the associated value from the query."

However, Chu discloses “changing either of the first element and the second element comprises at least one of: increasing the associated value; decreasing the associated value; and removing the associated value from the query” (column 4, lines 44-53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of “changing either of the first element and the second element comprises at least one of: increasing the associated value; decreasing the associated value; and removing the associated value from the query” would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 28,

Olson does not explicitly indicate “changing either of the first element and the second element comprises at least one of: adding a condition to the query; removing the at least one condition from the query; and changing the at least one condition with the query.”

However, Chu discloses “changing either of the first element and the second element comprises at least one of: adding a condition to the query; removing the at least one condition from the query; and changing the at least one condition with the query” (column 4, lines 44-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "changing either of the first element and the second element comprises at least one of: adding a condition to the query; removing the at least one condition from the query; and changing the at least one condition with the query" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 29,

Olson does not explicitly indicate "changing either of the first element and the second element is done with respect to a weight assigned to the element, the weight indicating a relative priority of changing the element relative to other elements in the abstract query."

However, Chu discloses "changing either of the first element and the second element is done with respect to a weight assigned to the element, the weight indicating a relative priority of changing the element relative to other elements in the abstract query" (relaxation order, column 6, lines 6-8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "changing either of the first element and the second element is done with respect to a weight assigned to the element, the weight indicating a relative priority of changing the element relative to other elements in the abstract query" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 30,

Olson does not explicitly indicate "repeating (d) and (e) until the result set satisfies the user-specified result criterion."

However, Chu discloses "repeating (d) and (e) until the result set satisfies the user-specified result criterion" (column 4, lines 53-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "repeating (d) and (e) until the result set satisfies the user-specified result criterion" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 31, Olson teaches

the user-specified result criterion is a result set size criterion. (paragraph [0078])

As per claim 32, Olson teaches

wherein each generated query produces a result set size specified by the user-specified result criterion. (paragraph [0078])

As per claim 33, Olson teaches

A computer readable storage medium containing a program which, when executed, performs an operation with respect to abstract queries and a logical model comprising a plurality of logical field definitions mapping to physical fields of physical data, the operation comprising: (see abstract and background)

receiving an abstract query defined with respect to at least one logical field of the logical model and comprising (i) a user-specified value for the at least one logical field (user specifies, paragraph [0078])

the manipulating being directed to satisfying the result set criterion with the returned results; (query, paragraph [0080])

wherein the modified abstract query is defined with respect to the at least one logical field; (isomorphic query, paragraph [0080])

wherein the transformed physical query includes a reference to at least one of the physical fields, the at least one physical field corresponding to the at least one logical field; (isomorphic query, paragraph [0080]; binding plan maps between virtual and physical, paragraph [0082])

and, wherein each logical field definition references an access method describing a manner of accessing a respective physical field. (binding plan maps between virtual and physical, paragraph [0082])

Olson does not explicitly indicate "and manipulating an element of the abstract query to produce a modified abstract query which, when executed in the form of a transformed physical query, returns results", "and (ii) a result set criterion specifying at least a size of a desired result set".

However, Chu discloses "and manipulating an element of the abstract query to produce a modified abstract query which, when executed in the form of a transformed physical query, returns results" (relaxes, column 4, lines 36-43), "and (ii) a result set criterion specifying at least a size of a desired result set" (user can relax, column 1, lines 25-27; at least (n), column 6, lines 14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "and manipulating an element of the abstract query to produce a modified abstract query which, when executed in the form of a transformed physical query, returns results", "and (ii) a result set criterion specifying at least a size of a desired result set" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 34,

Olson does not explicitly indicate "the abstract query comprises a limitation parameter limiting the manipulating of the element."

However, Chu discloses "the abstract query comprises a limitation parameter limiting the manipulating of the element" (WITHIN, column 5, lines 45-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "the abstract query comprises a limitation parameter limiting the manipulating of the element" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 35,

Olson does not explicitly indicate "the manipulating is performed iteratively until producing the modified abstract query which, when executed, returns results satisfying the result set criterion."

However, Chu discloses "the manipulating is performed iteratively until producing the modified abstract query which, when executed, returns results satisfying the result set criterion" (column 4, lines 53-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "the manipulating is performed iteratively until producing the modified abstract query which, when executed, returns results satisfying the result set criterion" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 36, Olson teaches

the at least one logical field ... in the logical model (paragraph [0082])

Olson does not explicitly indicate "has an associated element modification parameter defined ... wherein the manipulating is limited by the associated element modification parameter."

However, Chu discloses "has an associated element modification parameter defined ... wherein the manipulating is limited by the associated element modification parameter" (WITHIN, column 5, lines 45-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "has an associated element modification parameter defined ... wherein the manipulating is limited by the associated element modification parameter" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 37,

Olson does not explicitly indicate "manipulating the element comprises at least one of: increasing the user-specified value; decreasing the user-specified value; and removing the user-specified value from the abstract query."

However, Chu discloses “manipulating the element comprises at least one of: increasing the user-specified value; decreasing the user-specified value; and removing the user-specified value from the abstract query” (column 4, lines 44-53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of “manipulating the element comprises at least one of: increasing the user-specified value; decreasing the user-specified value; and removing the user-specified value from the abstract query” would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 38,

Olson does not explicitly indicate “manipulating the element comprises at least one of: removing a condition from the abstract query; adding a condition to the abstract query; and changing a condition with the abstract query.”

However, Chu discloses “manipulating the element comprises at least one of: removing a condition from the abstract query; adding a condition to the abstract query; and changing a condition with the abstract query” (column 4, lines 44-53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of “manipulating the element comprises at least one of: removing a condition from the abstract query; adding a condition to the abstract query; and changing a condition with the abstract query" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 39,

Olson does not explicitly indicate "the manipulating is performed with respect to a weight assigned to the element, the weight indicating a relative priority of manipulating the element relative to other elements in the abstract query."

However, Chu discloses "the manipulating is performed with respect to a weight assigned to the element, the weight indicating a relative priority of manipulating the element relative to other elements in the abstract query" (relaxation order, column 6, lines 6-8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "the manipulating is performed with respect to a weight assigned to the element, the weight indicating a relative priority of manipulating the element relative to other elements in the abstract query" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 40, Olson teaches

the physical data comprise a plurality of tables in a database. (paragraph [0067])

As per claim 41,

Olson does not explicitly indicate "transforming, with reference to the logical model, the modified abstract query into the physical query."

However, Chu discloses "transforming, with reference to the logical model, the modified abstract query into the physical query" (column 4, lines 19-26).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "transforming, with reference to the logical model, the modified abstract query into the physical query" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 42, Olson teaches

A computer system, comprising memory and at least one processor, and further comprising: (see abstract and background)

a logical model stored in physical storage space and comprising a plurality of logical field definitions mapping to physical fields of physical entities of data (taking a virtual source and physical source and mapping columns, paragraph [0082]), and wherein each logical field definition references an access method describing a manner of accessing a respective physical field, whereby the logical model provides a logical view of the data; (binding plan maps between virtual and physical, paragraph [0082]) a processor; (paragraph [0025])

and a runtime component which, when executed by the processor, is configured to at least (i) receive an abstract query comprising at least one condition with a reference to at least one of the logical field definitions (isomorphic query, paragraph [0080]), a value for the at least one logical field (paragraph [0080]).

Olson does not explicitly indicate "(ii) change an element of the abstract query in an effort to satisfy the desired result size criterion", "at least one user-selected result size criterion specifying a desired result set size to be returned".

However, Chu discloses "(ii) change an element of the abstract query in an effort to satisfy the desired result size criterion" (relaxes, column 4, lines 36-43), "at least one user-selected result size criterion specifying a desired result set size to be returned" (user can relax, column 1, lines 25-27; at least (n), column 6, lines 14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "(ii) change an element of the abstract query in an effort to satisfy the desired result size criterion", "at least one user-selected result size criterion specifying a desired result set size to be returned" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 43, Olson teaches

the at least one of the logical field definitions (paragraph [0082])

Olson does not explicitly indicate "comprises an attribute indicating that the element may be changed."

However, Chu discloses "comprises an attribute indicating that the element may be changed" (column 6, lines 5-16).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "comprises an attribute indicating that the element may be changed" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 44,

Olson does not explicitly indicate "the abstract query further comprises a limitation on an extent of permitted change to the element."

However, Chu discloses "the abstract query further comprises a limitation on an extent of permitted change to the element" (WITHIN, column 5, lines 45-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "the abstract query further comprises a limitation on an extent of permitted change to the element" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

As per claim 45,

each for a different logical field definitions (paragraph [0082])

Olson does not explicitly indicate "the element is a value and wherein the abstract query further comprises a plurality of values ... and wherein the runtime component is configured to change each of the values to produce different permutations of the abstract query in an effort to satisfy the result size criterion."

However, Chu discloses "the element is a value and wherein the abstract query further comprises a plurality of values ... and wherein the runtime component is configured to change each of the values to produce different permutations of the abstract query in an effort to satisfy the result size criterion" (column 4, lines 44-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Olson and Chu because using the steps of "the element is a value and wherein the abstract query further comprises a plurality of values ... and wherein the runtime component is configured to change each of the values to produce different permutations of the abstract query in an effort to satisfy the result size criterion" would have given those skilled in the art the tools to improve the invention by allowing approximate answers to be returned. This gives the user the advantage of being able to build more useful queries.

Response to Arguments

5. Applicant's arguments with respect to claims 1-45 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record, listed on form PTO-892, and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jay A. Morrison whose telephone number is (571) 272-7112. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo can be reached on (571) 272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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